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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,037	12/30/2003	Andrew S. Grover	42.P18168	9197

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EXAMINER

LI, ZHUO H

ART UNIT

PAPER NUMBER

2185

DATE MAILED: 01/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/750,037	<b>Applicant(s)</b> GROVER ET AL.	
	<b>Examiner</b> Zhuo H. Li	<b>Art Unit</b> 2185	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities:

Page 2, lines 1-2, "Method And Syst m to Spin Up A Hard Disk Prior To A Hard Disk Data Exchange Request" should be -- Method And System to Spin Up A Hard Disk Prior To A Hard Disk Data Exchange Request--.

Page 2, line 7, "patent application no. \_\_\_\_ filed 12/30/2003" should be --patent application no. 10/750,040 filed 12/30/2003--.

Page 2, lines 9-10, "patent application no. \_\_\_\_ filed 12/30/2003" should be -- patent application no. 10/749,815 filed 12/30/2003--.

Page 2, line 12, "patent application no. \_\_\_\_ filed 12/30/2003" should be -- patent application no. 10/749,756 filed 12/30/2003--.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 4-7 and 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Hetzler (US PAT. 5, 682,273).

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Regarding claim 1, Hetzler discloses a method comprising a system, i.e., disk drive (40, figure 1) detecting an occurrence of a predetermined event, i.e., read/write memory access from computer (41, figure 1) via the interfaces (11 and 13, figure 1), in response to detecting the event, spinning up a hard disk (34, figure 1) of the system prior to a request, i.e. read/write access, to exchange data with the hard disk, i.e., rotating the disk by the spindle motor (5, figure 1) to a head before the data is writing or reading from the disk (col. 1 lines 27-30 and col. 22 lines 18-30).

Regarding claims 4-6, Hetzler discloses the predetermined event includes detecting a presence of a system user, one of movement and activation of one of an input device and a pointing device, movement of a mouse or activation of a key on a keyboard (col. 4 lines 48-59).

Regarding claim 7, the limitations of the claim are rejected as the same reasons set forth in claim 1.

Regarding claims 10-11, the limitations of the claim are rejected as the same reasons set forth in claims 4-6.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

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claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 2-3, 8-9, and 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hetzler (US PAT. 5, 682,273) in view of Ramakrishnan et al. (US PAT. 5, 636,355 hereinafter Ramakrishnan).

Regarding claims 2-3, although Hetzler teaches the disk drive system further comprising a cache memory, i.e., buffer memory (10, figure 3) to store data being transferred from between computer and disk drive (col. 4 lines 14-17 and col. 13 lines 6-29), Hetzler differs from the claimed invention in not specifically teaches the predetermined event is a cache of the hard disk reaching a predetermined level of dirty data, the predetermined level is to be reached before the cache of the hard disk is full of dirty data, and the cache of the hard disk consists of nonvolatile memory. However, Ramakrishnan discloses a hard disk system comprising a non-volatile cache memory used to hold data blocks for which write request have been made is write of dirty blocks, which not yet written to the disk, and immediately perform a write-back operation when the dirty blocks in the non-volatile cache memory reach to a pre-selected threshold (col. 3 lines 27-40 and col. 5 lines 30-58), Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the cache memory of Hetzler in the disk drive system is a nonvolatile memory, which the predetermined event is a cache of the hard disk

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reaching a predetermined level of dirty data, the predetermined level is to be reached before the cache of the hard disk is full of dirty data, as per teaching by the nonvolatile cache of Ramakrishnan, because it reduces the number of disk write accesses needed to satisfy disk write requests, and keep the latency small and avoid read stalls (col. 2 lines 55-57 and col. 9 lines 54-57).

Regarding claims 8-9, the limitations of the claim are rejected as the same reasons set forth in claims 2-3.

Regarding claim 12, Hetzler discloses a system (figure 1), comprising a processor (41, figure 1), a cache (10, figure 1) and (col. 4 lines 14-17), coupled to the processor via the interface (11, figure 1), and a machine readable medium, i.e., disk drive (40, figure 1) having stored thereon a set of instructions which when executed cause the system to perform a method comprising of detecting an occurrence of a predetermined event, i.e., read/write memory request from computer (41, figure 1) via the interfaces (11 and 13, figure 1) and (col. 3 line 40 through col. 4 line 10), in response to detecting the event, spinning up a hard disk (34, figure 1) of the system prior to a request to exchange data with the hard disk, i.e., rotating the disk by the spindle motor (5, figure 1) to a head before the data is writing or reading from the disk (col. 1 lines 27-30 and col. 22 lines 18-30). Hetzler differs from the claimed invention in not specifically teaches the cache memory is a nonvolatile memory. However, Ramakrishnan discloses a hard disk system comprising a non-volatile cache memory used to hold data blocks for which write request have been made is write of dirty blocks, which not yet written to the disk, and immediately perform a write-back operation when the dirty blocks in the non-volatile cache memory reach to a pre-selected threshold (col. 3 lines 27-40 and col. 5 lines 30-58). Therefore, it would have

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been obvious to a person of ordinary skill in the art at the time the invention was made to modify the cache memory of Hetzler in the disk drive system is a nonvolatile memory, as per teaching by the disk drive system of Ramakrishnan, because it reduces the number of disk write accesses needed to satisfy disk write requests (col. 2 lines 55-57).

Regarding claims 13-14, the limitations of the claim are rejected as the same reasons set forth in claims 2-3.

Regarding claims 15-16, the limitations of the claim are rejected as the same reasons set forth in claims 4-6.

### *Conclusion*

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mattson et al. (US PAT. 5,542, 066) discloses destaging modified data blocks from nonvolatile cache memory in a disk array system to maximize the cache hit ratio and minimize disk utilization (col. 3 line 33 through col. 4 line 26).

Takagi (US PAT. 6,131,147) discloses large capacity storage apparatus having storage cells, an accessor, a cache memory and a disc update section to set a number of frequently accessed storage media (abstract).

Pearce (US PAT. 5,819,100) discloses operating system independent method and system for preserving hard disk drive life span in power-managed computers (abstract).

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zhuo H. Li whose telephone number is 571-272-4183. The examiner can normally be reached on Tues - Fri 9:00am - 6:30pm and alternate Monday..

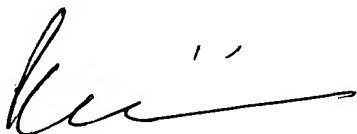
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Kim can be reached on 571-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Zhuo H. Li



Patent Examiner  
January 6, 2006



BEHZAD JAMES PEIKARI  
PRIMARY EXAMINER